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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,656	01/22/2004	John S. Wheat	8540P-000185	5141

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HARNES, DICKEY & PIERCE, P.L.C.  
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EXAMINER
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CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1745

MAIL DATE	DELIVERY MODE
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07/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/762,656	Applicant(s) WHEAT ET AL.	
	Examiner Tony Chuo	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-31 and 33-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-31 and 33-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Claims 1-4, 6-31, and 33-39 are currently pending. The previously stated 112 rejections of claims 1-4, 6-31, and 33-39 are withdrawn. The 102 rejection of claims 1-4, 6, 7, 9, 12-24, 27-31, 33-35, and 38 as being anticipated by Konuma et al is withdrawn. However, upon further consideration, claims 1-4, 6-31, and 33-39 stand rejected under the following 102 and 103 rejections.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, 7, 9-27, 29-31, and 33-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al (JP 06-267577).

Regarding claims 1-4, 13-24, 29, 31, 33, 35, and 38, the Sato reference discloses a fuel cell system and a method of operating a fuel cell system comprising: combining the fuel cells to provide a plurality of fuel cell stacks "S1" to "Sn"; electrically connecting the stacks in parallel to provide a standard voltage range across each of the stacks and to generate a detected output current through a load; obtaining a desired output current value "loi" from each of the stacks; and regulating the current produced by each of the stacks around the desired output current value by using the controller "C"

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to control the input valves and output valves of each stack wherein each individual stack current is individually balanced based upon the actual total output current of all of the stacks by adjusting parameters such as the pressure, temperature, and concentration affecting the input and output of fuel gas and air to each of the stacks individually (See Abstract and paragraphs [0011],[0017],[0021],[0028],[0031],[0032]).

Regarding claims 6, 7, and 34, it also discloses a controller "C" that controls a first current through a first stack and a second current through a second stack wherein the second current is controlled independently of the first current and wherein the first and second currents are based upon rated capacity of each stack "Ioi" which is proportional to active areas of the first and second stacks (See paragraphs [0031],[0032]).

Regarding claim 9, it also discloses current detectors "ID1" to "IDn" that are connected for every output current of each stack to determine the gross load current (See paragraph [0022]).

Regarding claim 10 and 27, it also discloses setting up flow rates of fuel and air according to measured output current of the fuel cell stacks (See paragraph [0010]).

Regarding claim 11, 25, 26, 36, 37, and 39, it also discloses oxygen concentration means which inherently would comprise a pair of oxygen sensors that sense oxygen consumption by each stack by determining the oxygen concentration in a cathode inlet and outlet; and determining the desired current through each stack using the determined oxygen consumption (See paragraph [0012]).

Regarding claim 12 and 30, it is inherent that the total power is adjusted by adjusting the plurality of parallel stacks.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (JP 06-267577) in view of Dickman et al (US 2001/0049038). The Sato reference is applied to claims 1 and 19 for reasons stated above.

However, Sato et al does not expressly teach a contactor connected between one of the stacks and the load and a method of controlling power to a load supplied by a plurality of fuel cells comprising controlling at least one input to a given stack to eliminate a current through the given stack. The Dickman reference discloses a contactor "100" for isolating a fuel cell stack from the applied load and a method of interrupting the flow of hydrogen and air to a particular stack so that the stack does not produce electric current (See paragraphs [0059],[0061]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Sato fuel cell system to include a contactor connected between one of the stacks and the load and a method of controlling power to a load supplied by a plurality of fuel cells comprising controlling at least one input to a

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given stack to eliminate a current through the given stack in order to increase the lifetime of the stacks by isolating one or more stacks during periods when power consumption is at a minimum.

### ***Response to Arguments***

6. Applicant's arguments filed 5/11/07 have been fully considered but they are not persuasive.

The applicant argues that Sato fails to teach the limitation of controlling one or more individual currents of one or more fuel cell stacks based upon the gross load current. For further clarification, the Sato reference discloses controlling the current of each stack based upon the actual total output current which is equivalent to the gross load current (See paragraph [0032]). Since the gross load current and the desired current through the load are both known parameters, the controller would inherently be capable of comparing the gross load current with a desired current through the load. In addition, since the output current of each stack is determined by the controller, the controller would easily be capable of summing the output current of each stack to determine the gross load current.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC



**JONATHAN CREPEAU**  
**PRIMARY EXAMINER**